



Iowa Freight Advisory Council

Impact of Supply Disruptions

June 17, 2022



Recognizing private company success

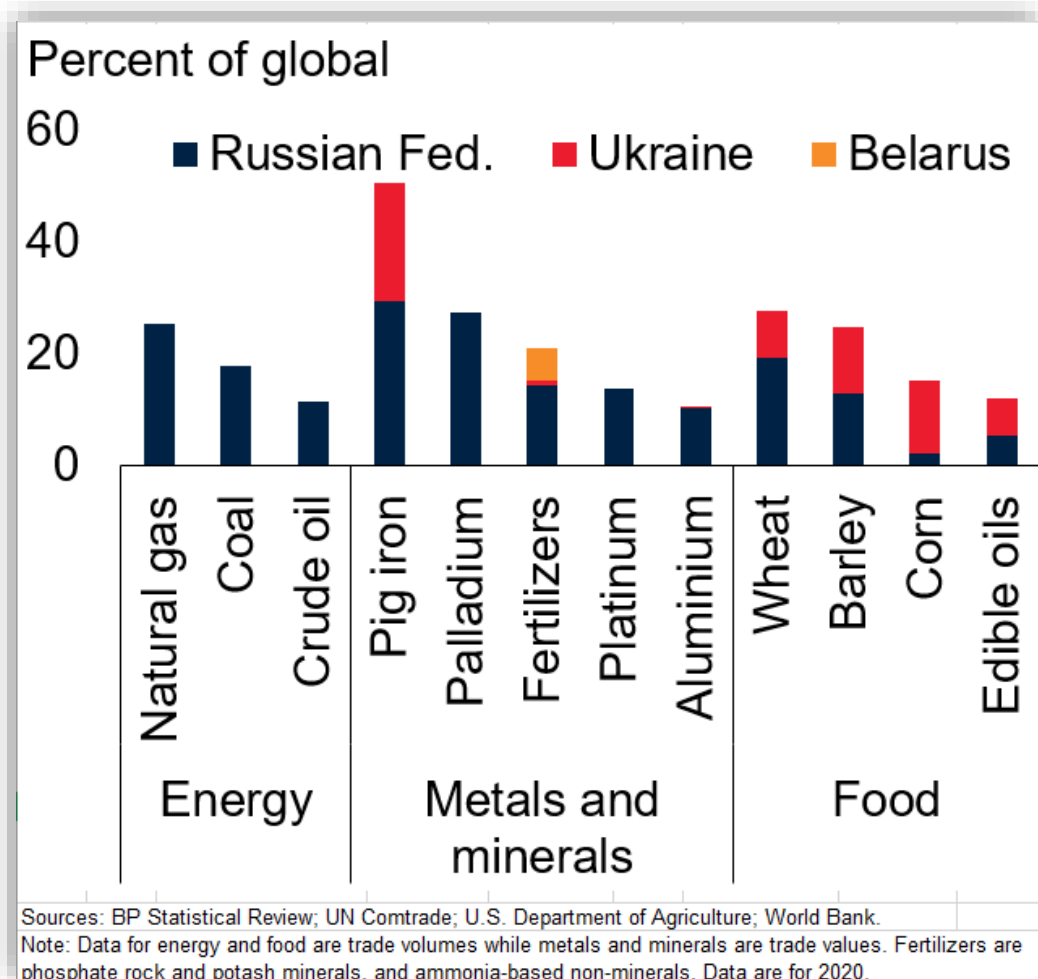
IFAC Agenda

Discussion of how the Iowa and global supply chain systems have been impacted by recent disruptions (war in Ukraine, COVID-19 pandemic, etc.) and future implications or long-term impacts this could have.

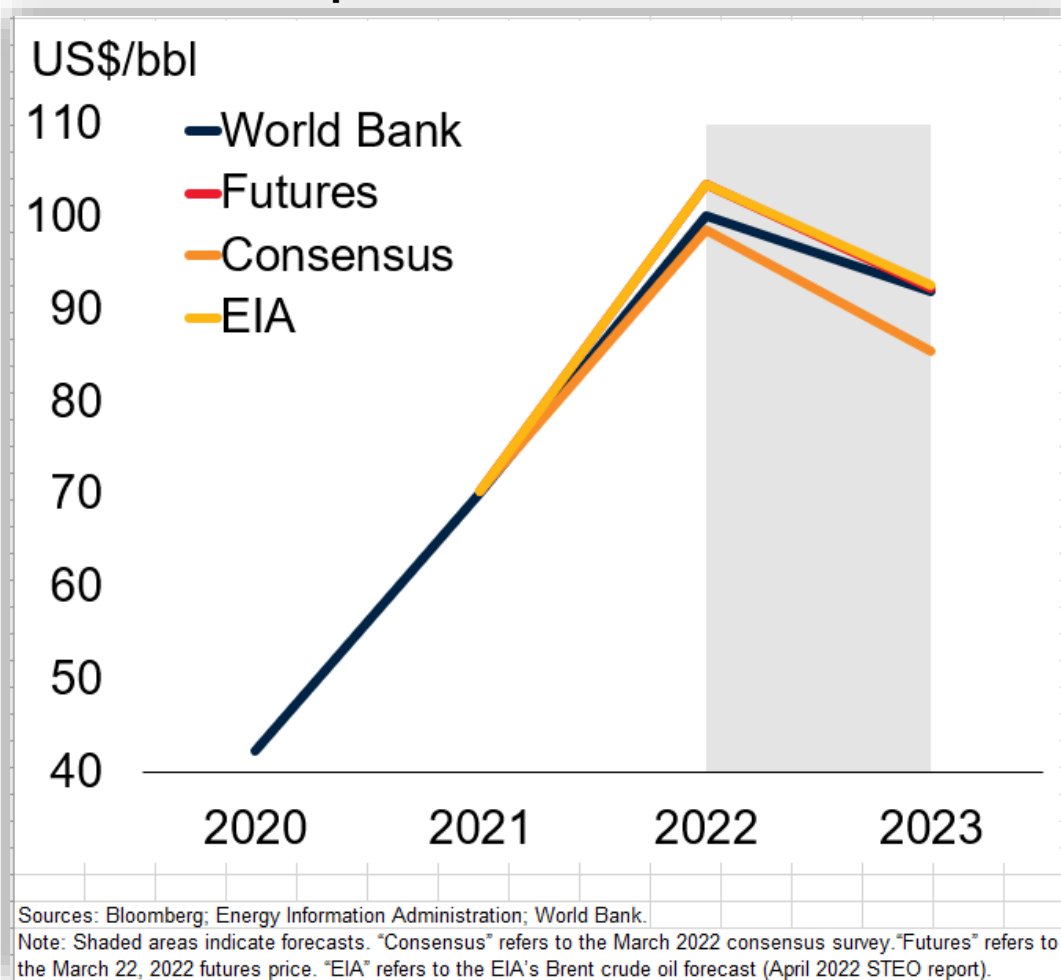
Supply Disrupted: Ukraine's Global Commodity Impact

Ukraine Commodity Impact

Russia and Ukraine's share of commodity exports



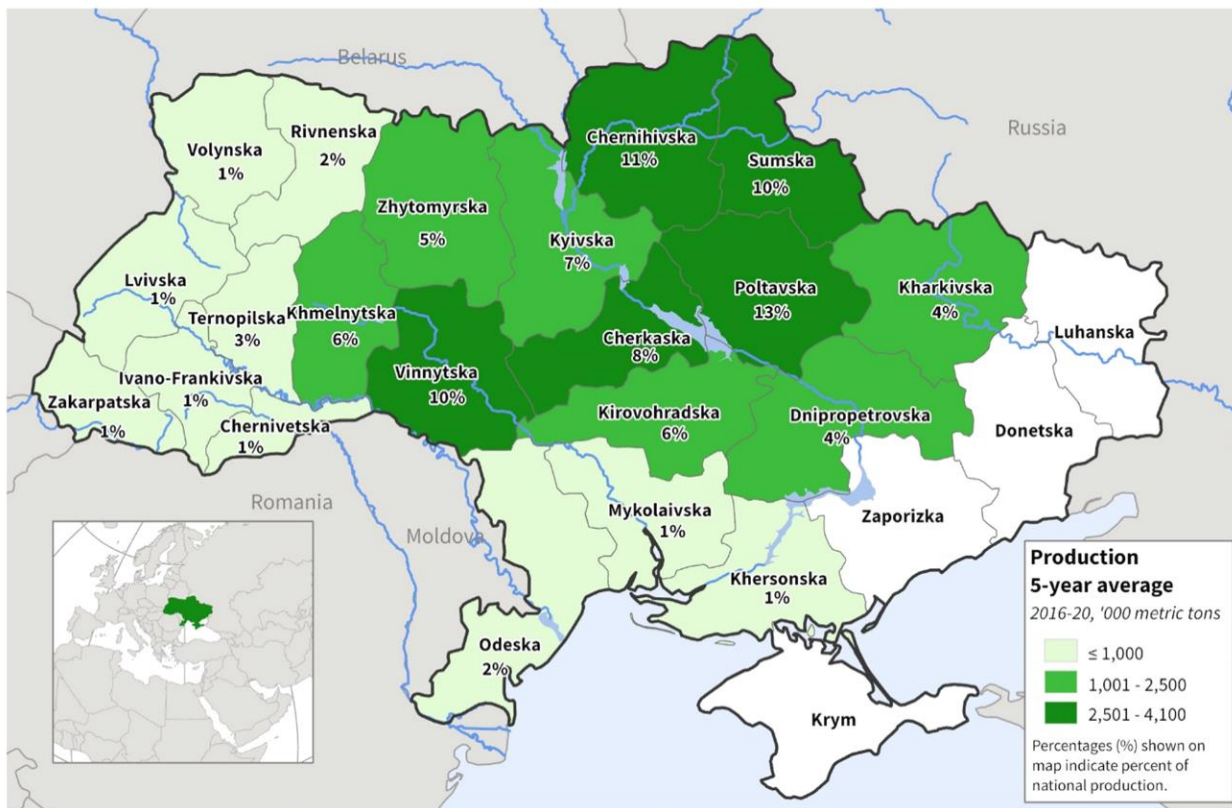
Brent crude oil price forecasts



Source: World Bank's Commodity Markets Outlook

Ukraine Commodity Impact

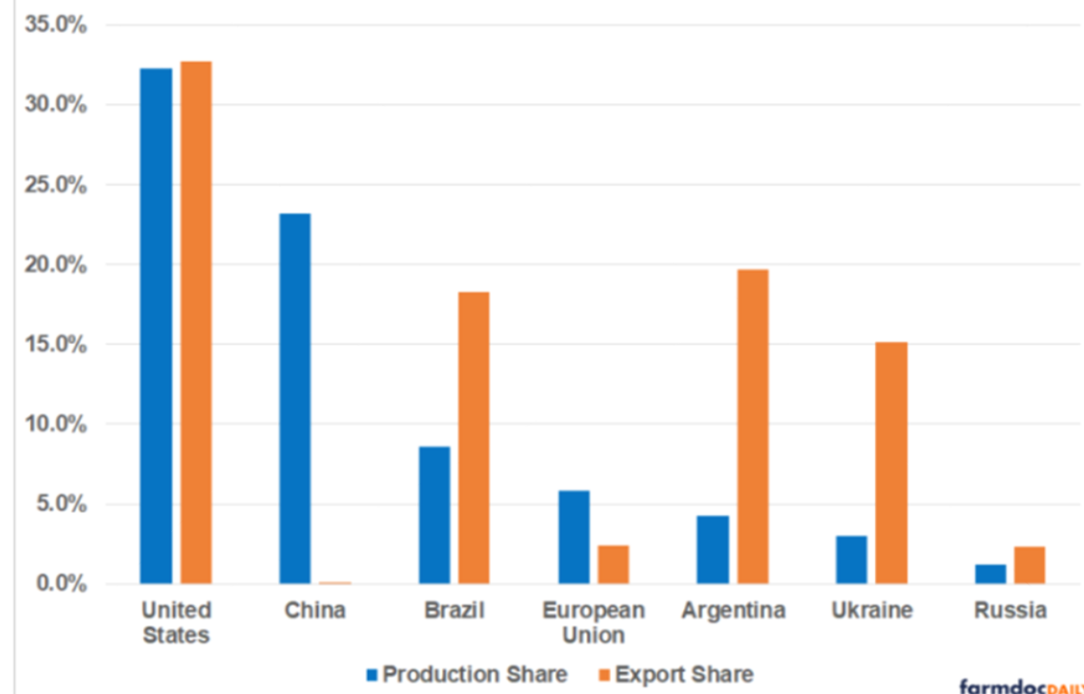
Ukraine: Corn Production



USDA Foreign Agricultural Service
U.S. DEPARTMENT OF AGRICULTURE

Source: State Statistics Service of Ukraine (Rosstat for Crimea Oblast)
Average Corn Production 2016-2020

Figure 2. World Corn Production and Export Shares, 2017-2021 Average



Corn Futures Over 20 year Horizon



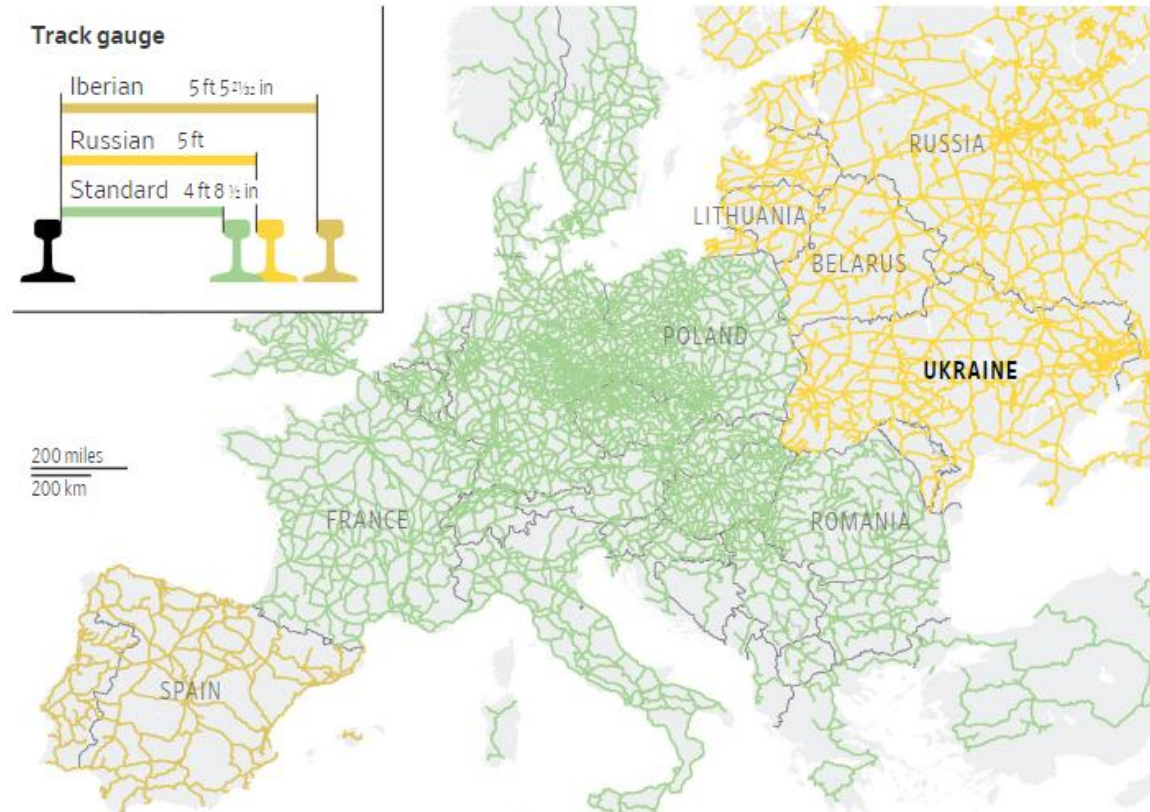
**Current
>\$7.91<**

\$5.00

\$3.00

Ukraine Commodity Impact

Rail transport in Europe



Note: Includes passenger and freight rail tracks. Finland's track gauge and Russian track gauge differ by 4mm but are compatible. All high-speed rail in Europe uses standard-gauge except from Russia and Finland.

Sources: Stratfor; Agico Group



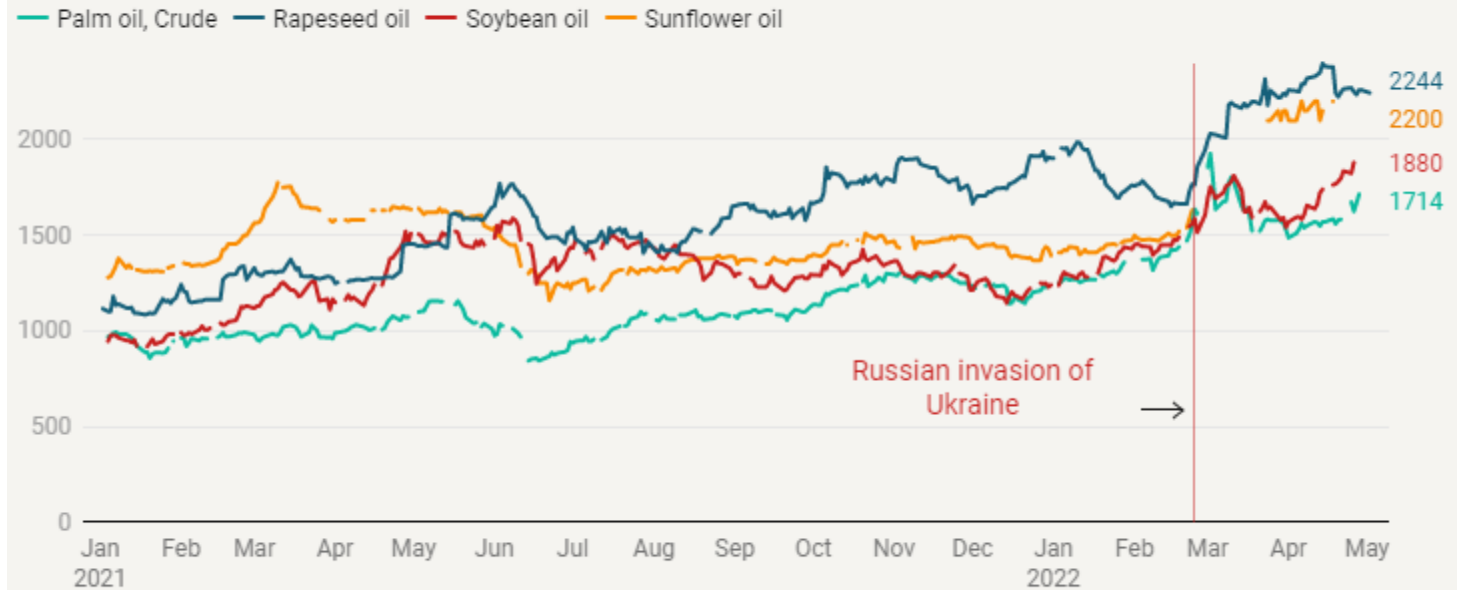
Source: Ministry of Agrarian Policy and Food of Ukraine

Source: WSJ Ukraine Is Struggling to Export Its Grain, and Here's Why – June 5, 2022

Ukraine Commodity Impact

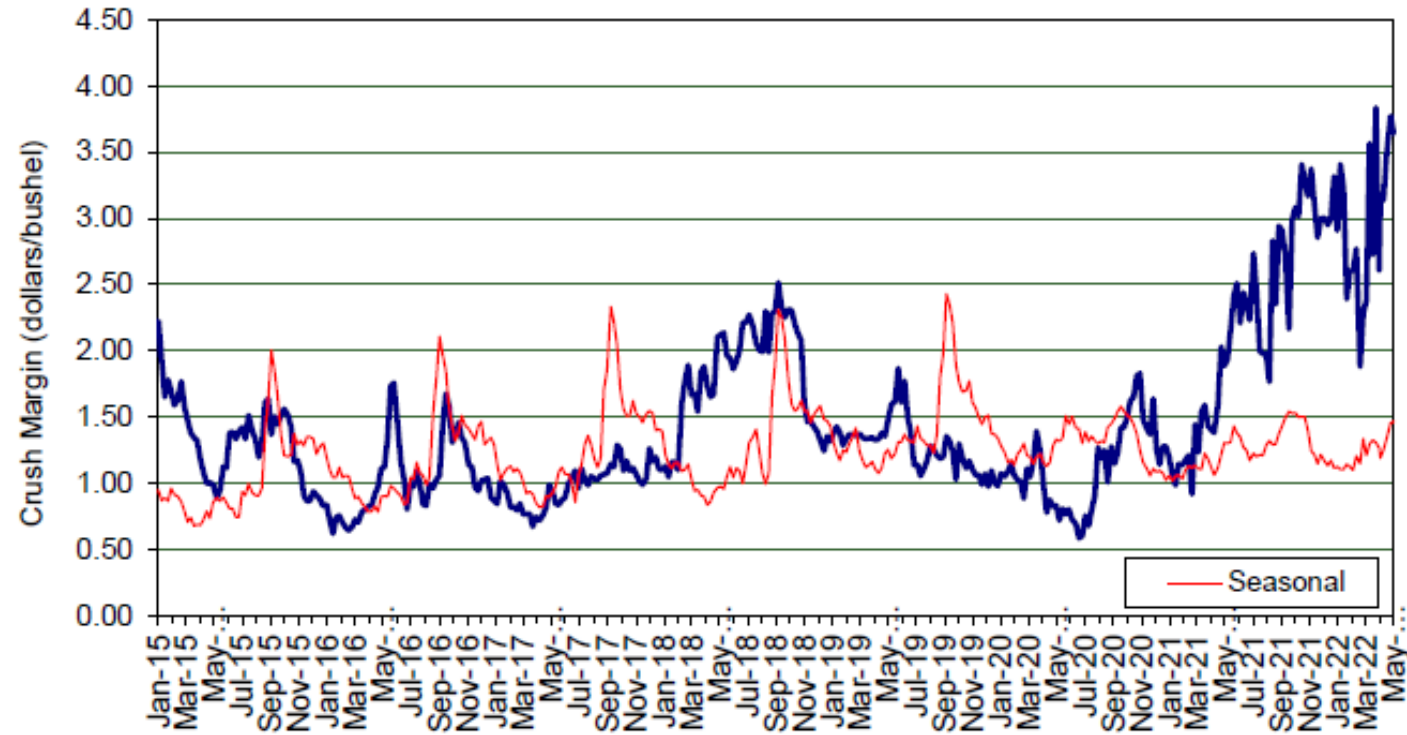
FIGURE 1

Daily vegetable oil prices, current USD



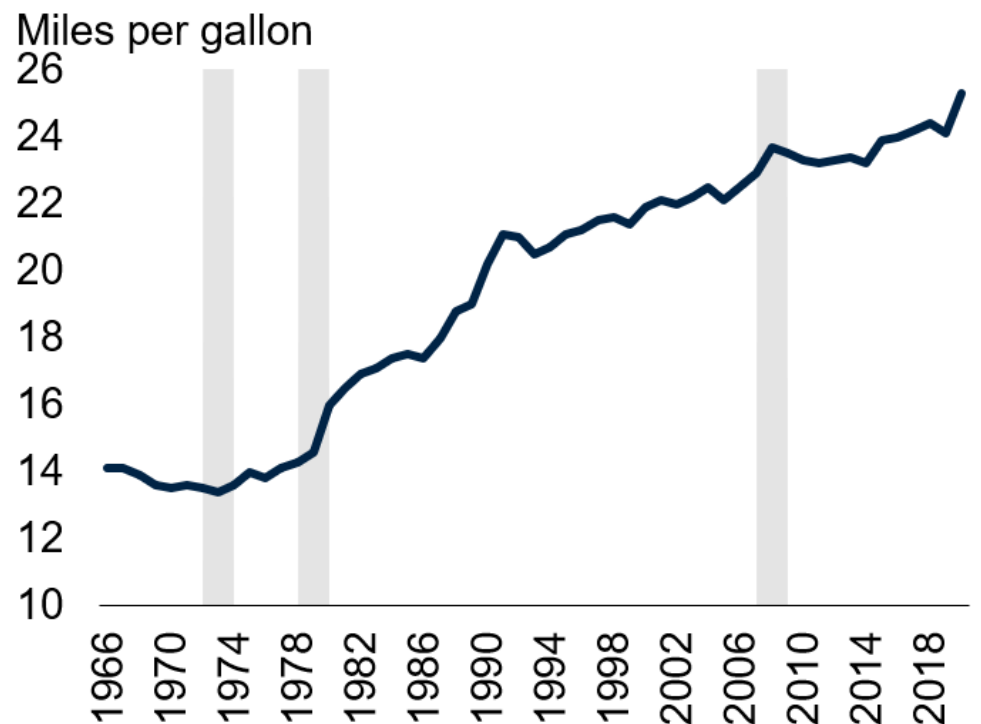
Soybean oil: CBOT, Palm Oil, crude: Malaysian Board daily price, Rapeseed Oil: Rotterdam spot prices, Sunflower oil: India CIF Mumbai price
Chart: David Laborde • Source: MPOB, Bloomberg, CBOT • [Get the data](#) • [Embed](#) • [Download image](#)

U.S. Soy Crush Margin



Ukraine War's Future Impact?

U.S. road vehicle fuel efficiency

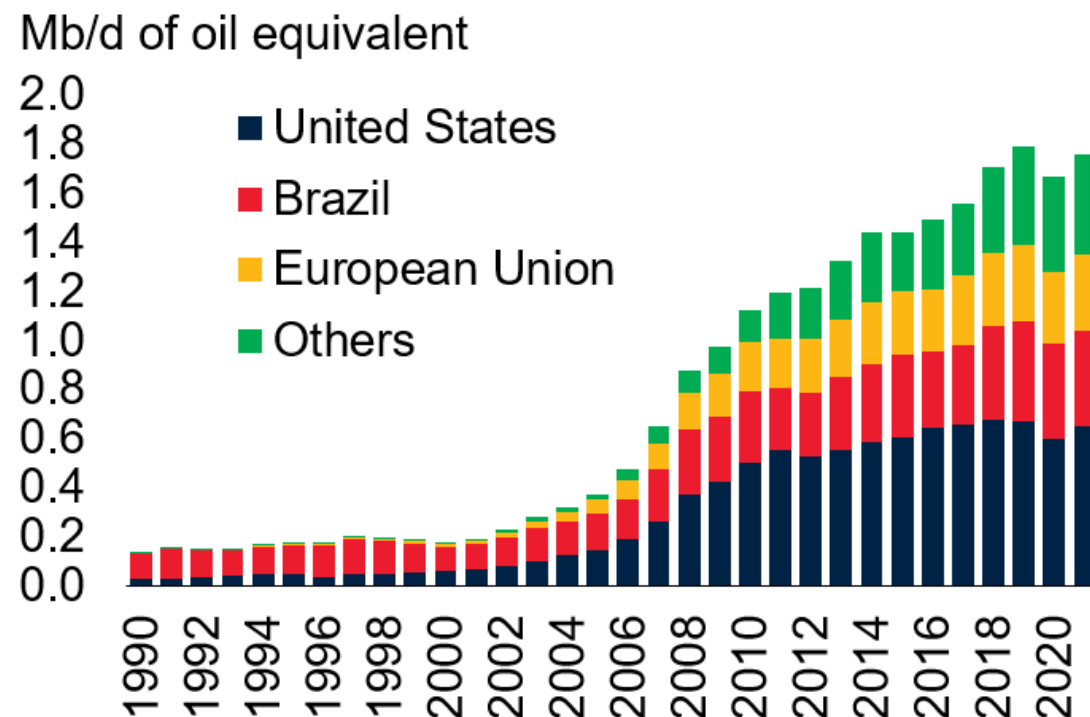


Source: Energy Information Administration (EIA); World Bank.

Note: Figure shows the fuel efficiency of U.S. vehicles in miles driven per gallon of gasoline consumed. Shaded areas refer to oil price shocks in 1973, 1979, and 2008.

Source: World Bank's Commodity Markets Outlook

Biofuel production



Sources: BP Statistical Review, Organisation for Economic Co-operation and Development; World Bank.



Supply Disrupted: COVID-19 Impact

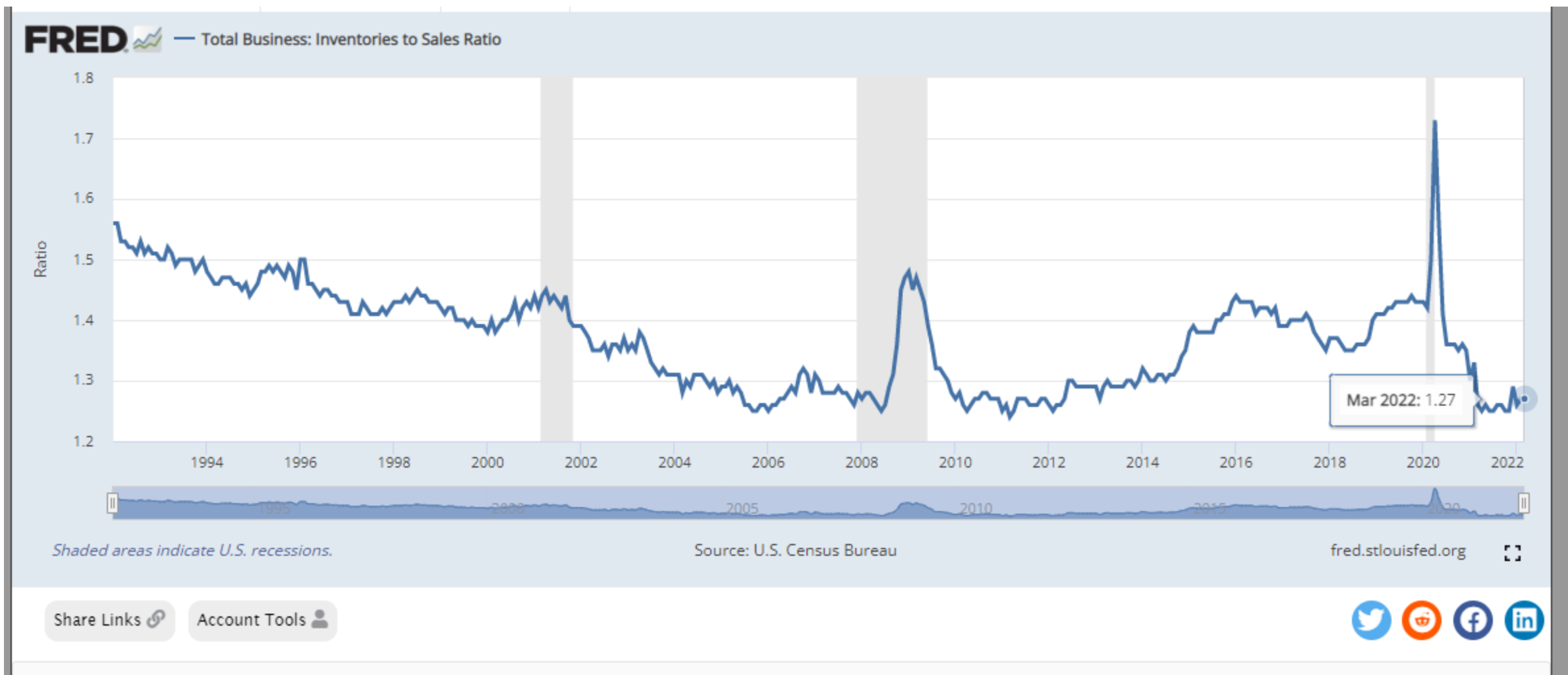


Recognizing private company success

COVID-19 Pandemic Impact

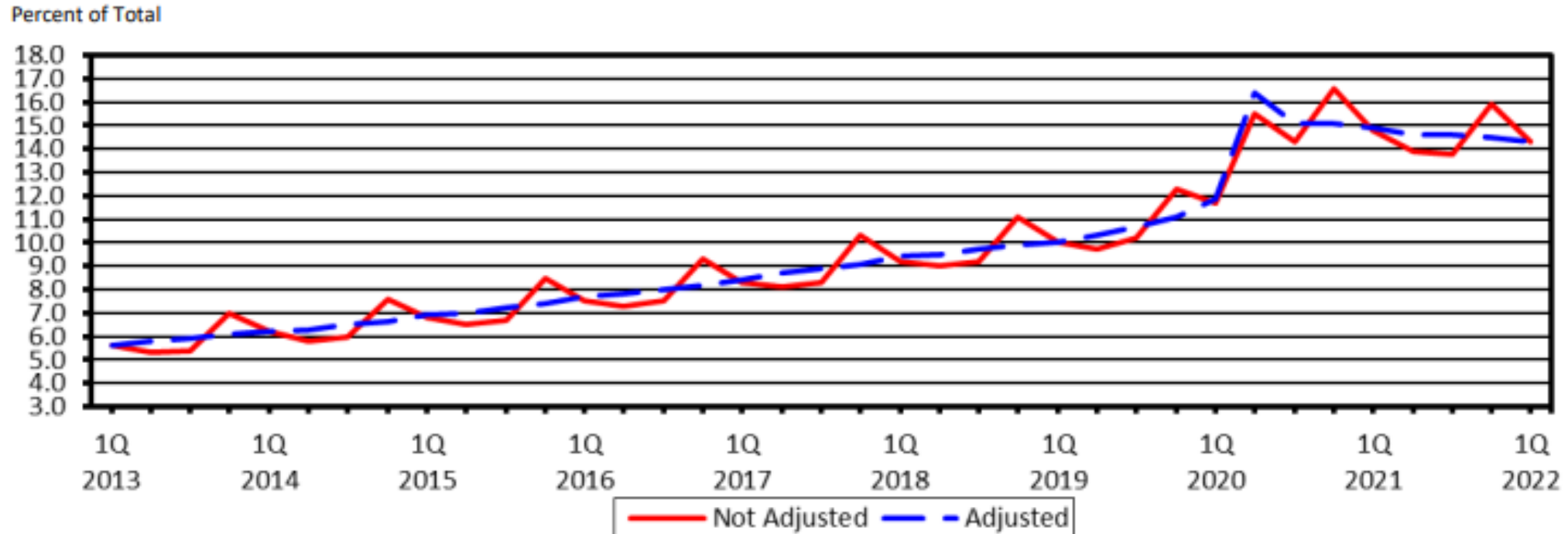
- Loss of agility - Rigid Supply Chain
- Labor Constraints
- Unknown Future - Supply Allocations
- Freight Service Level Gaps
- Buyer Behavior Changes
- Companies Use of Cash Secure Supply
- Warehouse Programs
- Price Inflation
- Suppliers Extended Lead-Times
- Supply/Demand Imbalance

COVID-19 Pandemic Impact



COVID-19 Pandemic Impact

Estimated Quarterly U.S. Retail E-commerce Sales as a Percent of Total Quarterly Retail Sales:
1st Quarter 2013 – 1st Quarter 2022

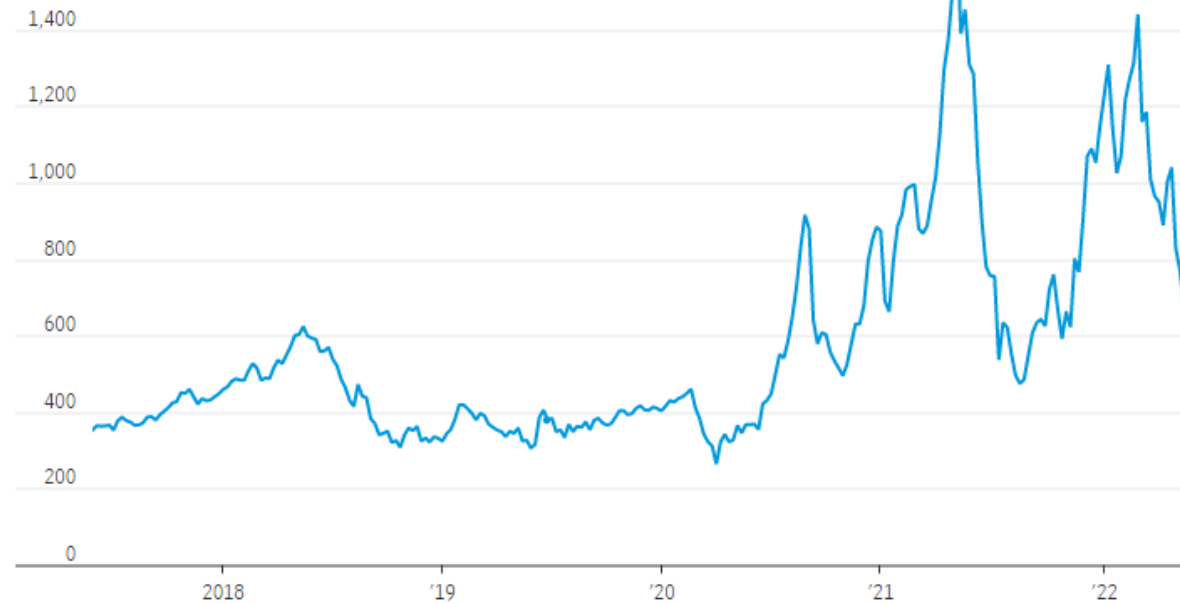


Source: WSJ The Pandemic Was Supposed to Push All Shopping Online. It Didn't— April 16, 2022

Lumber Prices

Lumber-futures price, weekly

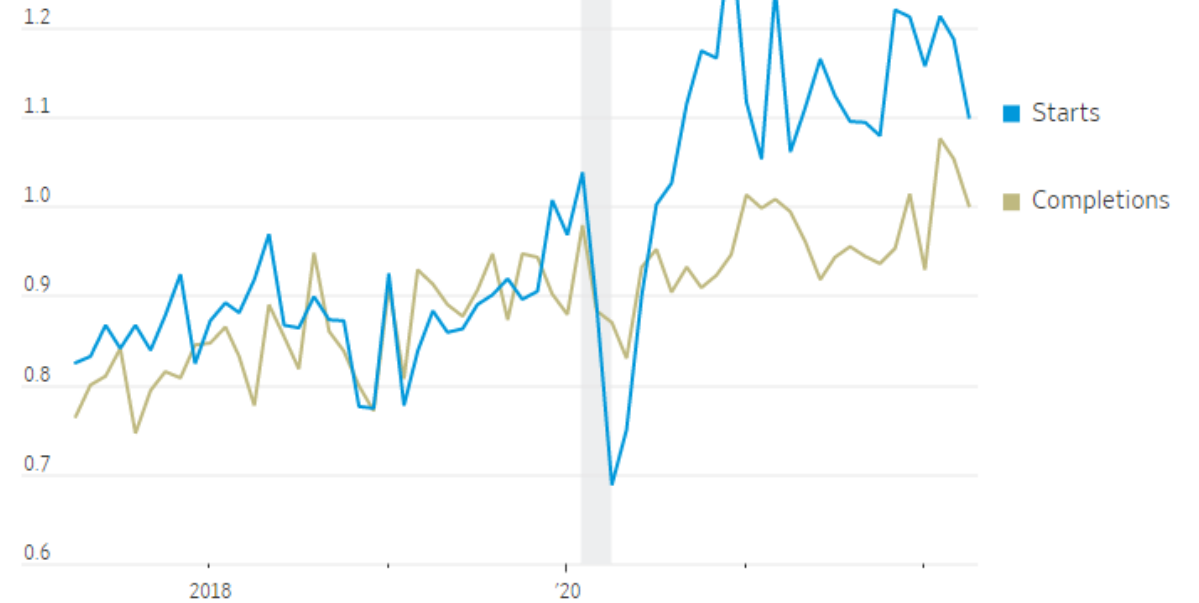
\$1,600 per 1,000 board feet



Note: Random length, continuous contract
Source: FactSet

Single-family houses started and completed

1.3 million



Note: Seasonally adjusted annual rates
Source: U.S. Census Bureau via St. Louis Fed

Source: WSJ Lumber Prices Slump with Rising Interest Rates – May 30, 2022

Labor and Employment Factors

Employment Metrics

U.S. Labor Constraints

3.6% Unemployment
or 5.9M Unemployed

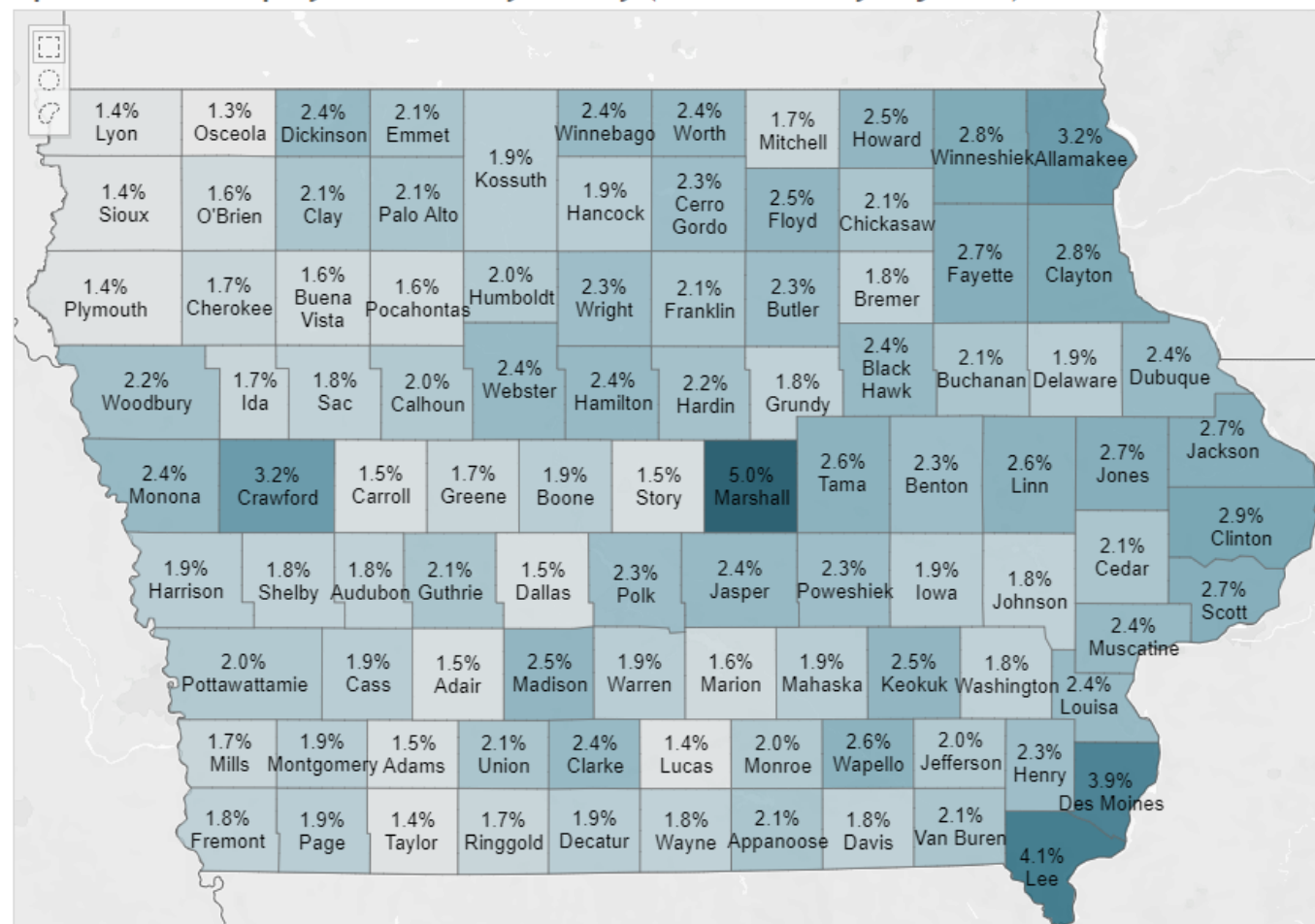
62.2% Labor
Participation Rate
(67.3% peak)



11.5M Job Openings
(7.1%)

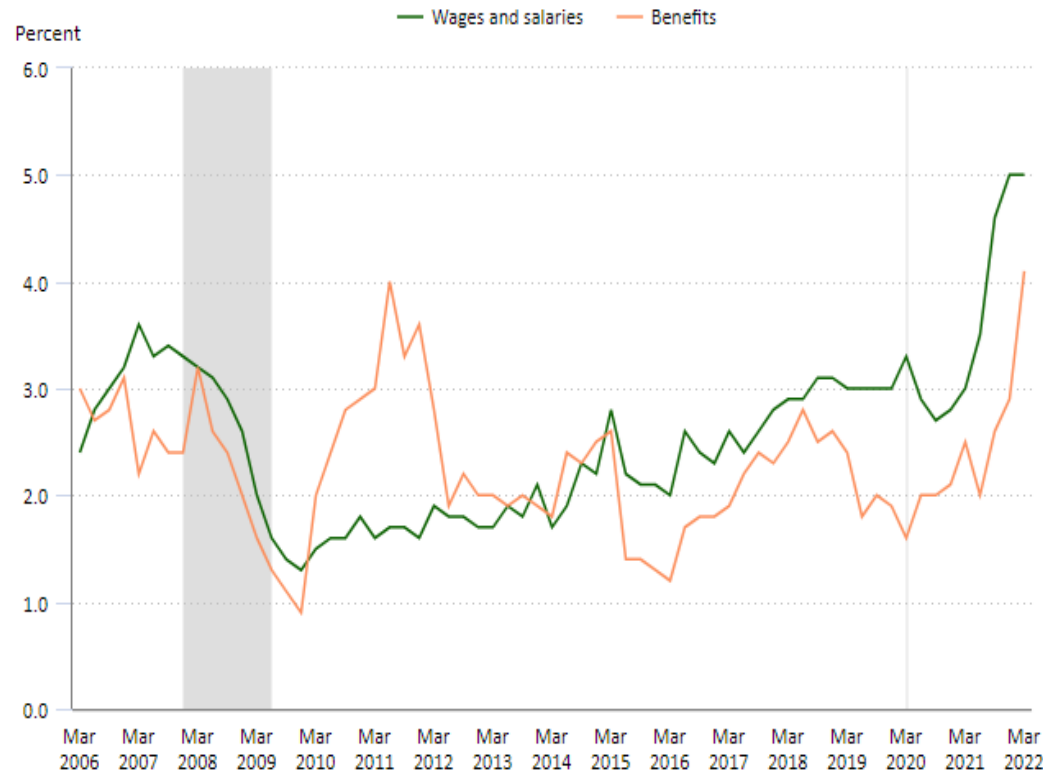
6.7M Hires (4.5%)
and
6.3M Separations
(4.2%)

April 2022 Unemployment Rate by County (Not Seasonally Adjusted)



Price Inflation

U.S. Employment Cost Index (ECI)



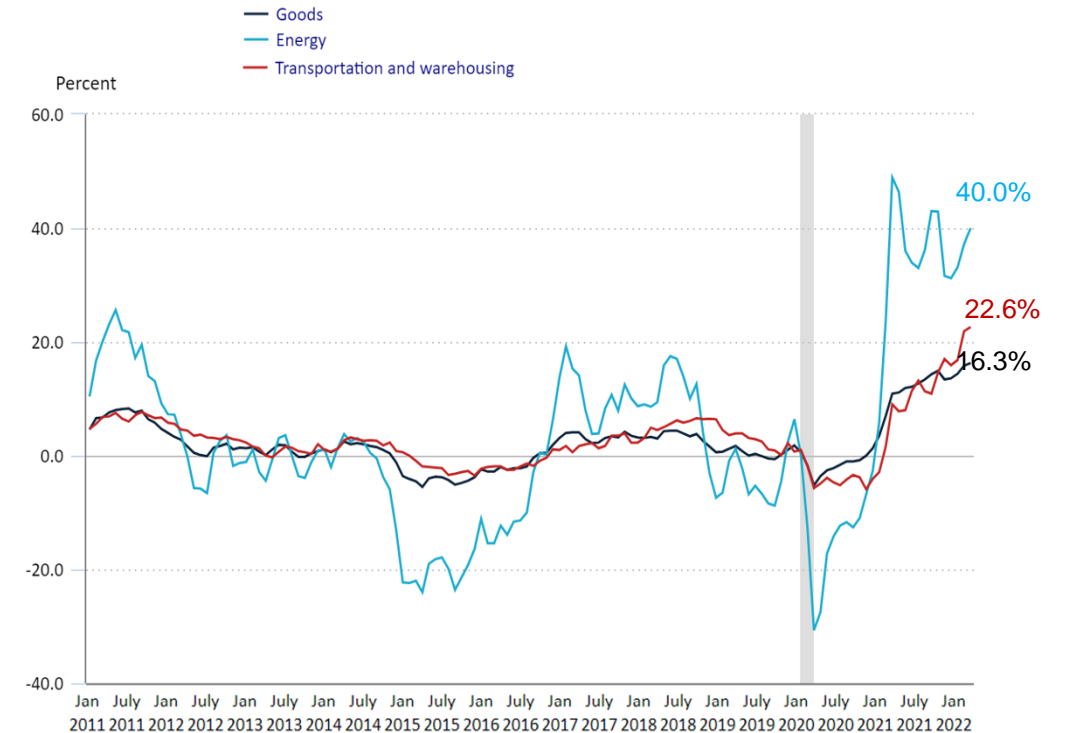
Hover over chart to view data.

Note: Shaded area represents recession, as determined by the National Bureau of Economic Research.

Source: U.S. Bureau of Labor Statistics.

Producer Price Index (PPI)

PPI for final demand, 12-month percent change, not seasonally adjusted



Source: U.S. Bureau of Labor Statistics.

All data are subject to revision 4 months after originally published.

Supply Disrupted: Energy

Energy Impact

Old Missouri Coal Plant Neared Retirement; Now It's Needed to Avert Blackouts

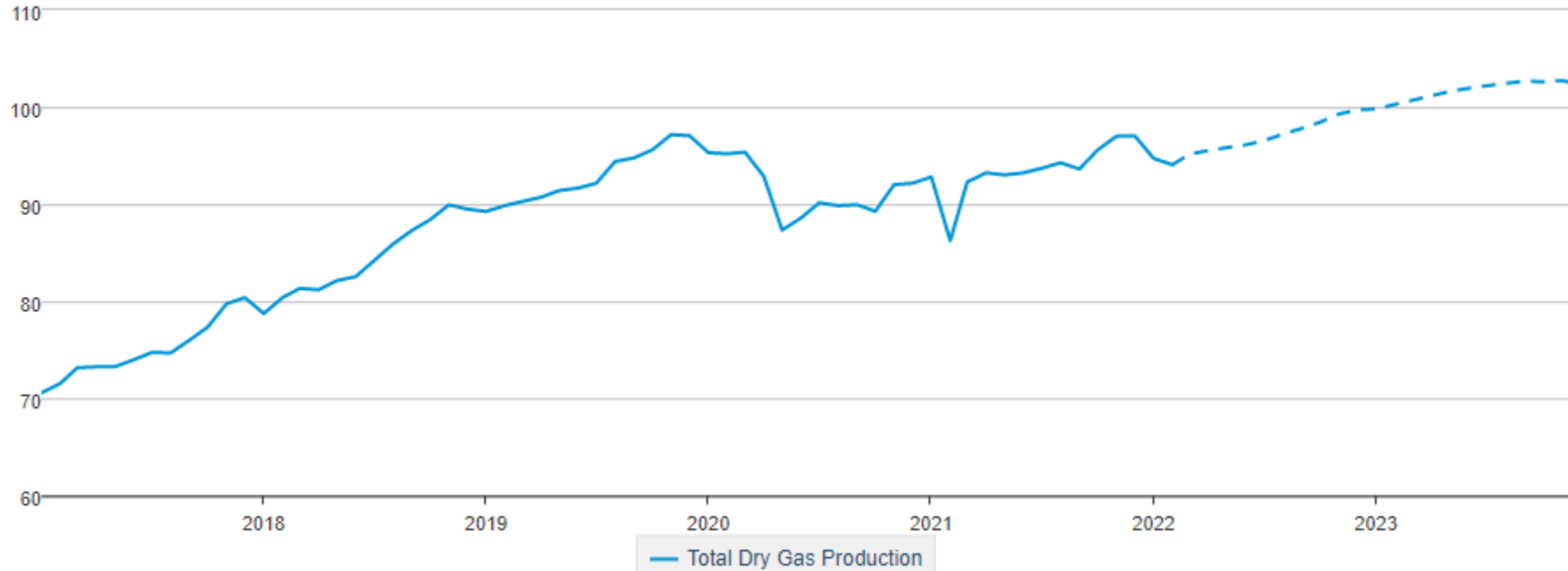
Grid operator likely needs Ameren's Rush Island generator as insurance to keep the lights on



Energy Impact

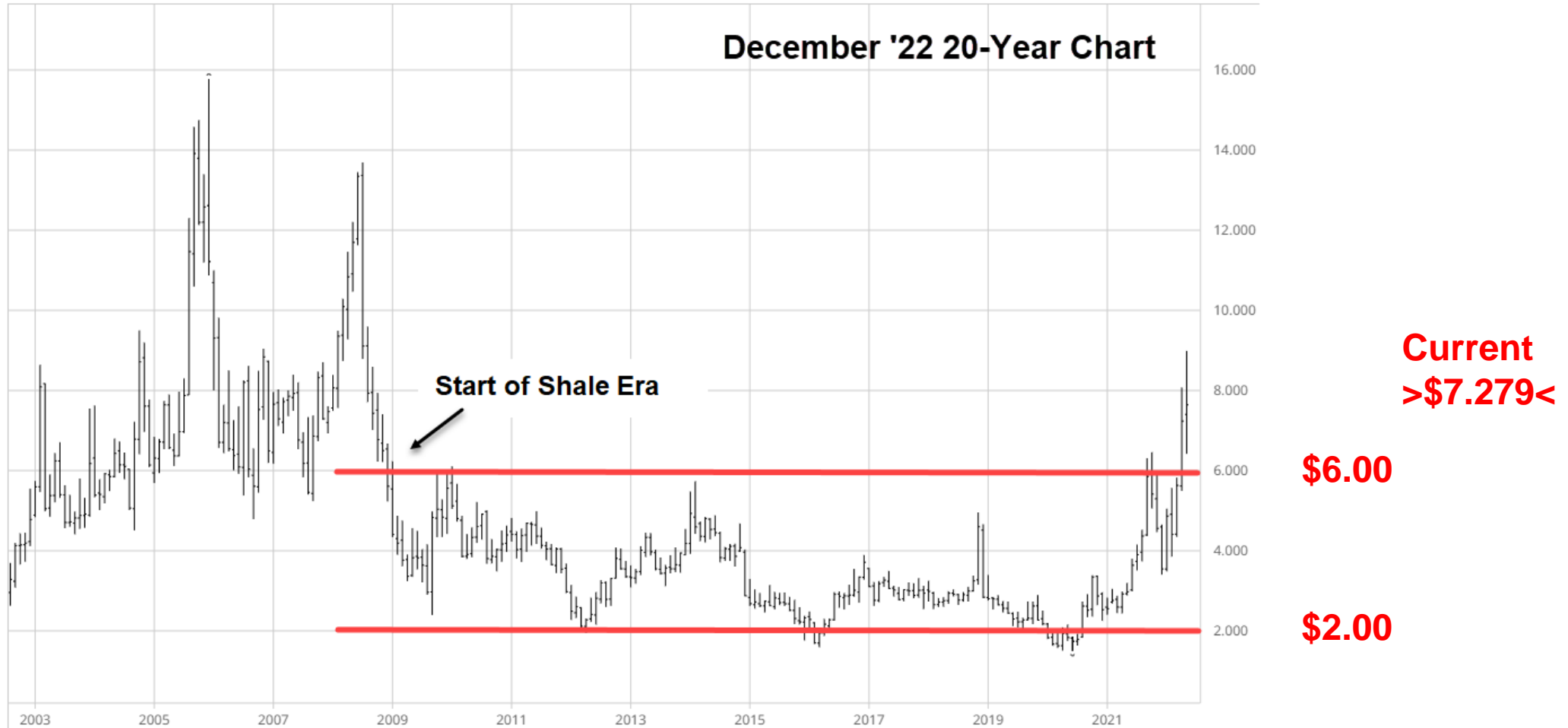
Total Dry Gas Production

billion cubic feet per day



Source: U.S. Energy Information Administration

U.S. Natural Gas Price History

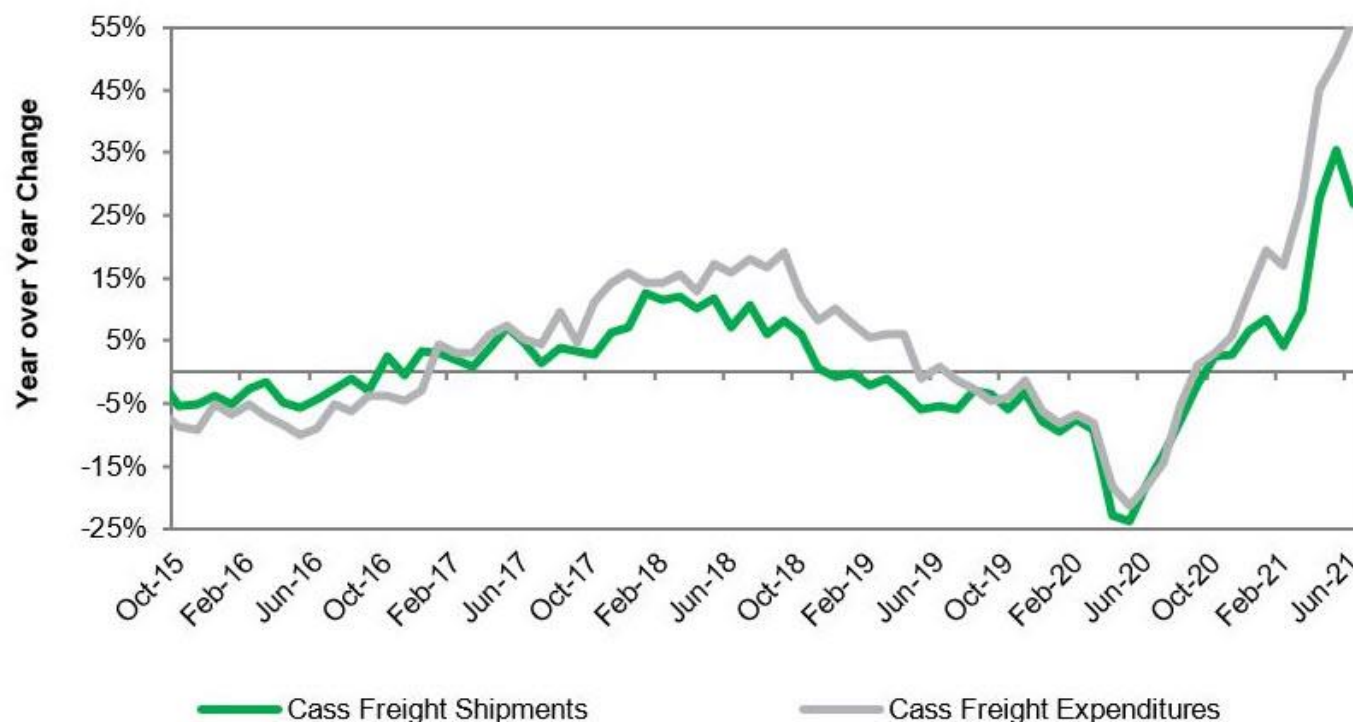


Logistics Update

Logistics Update

Rail, truck capacity constrains surface volumes, but rates soar higher

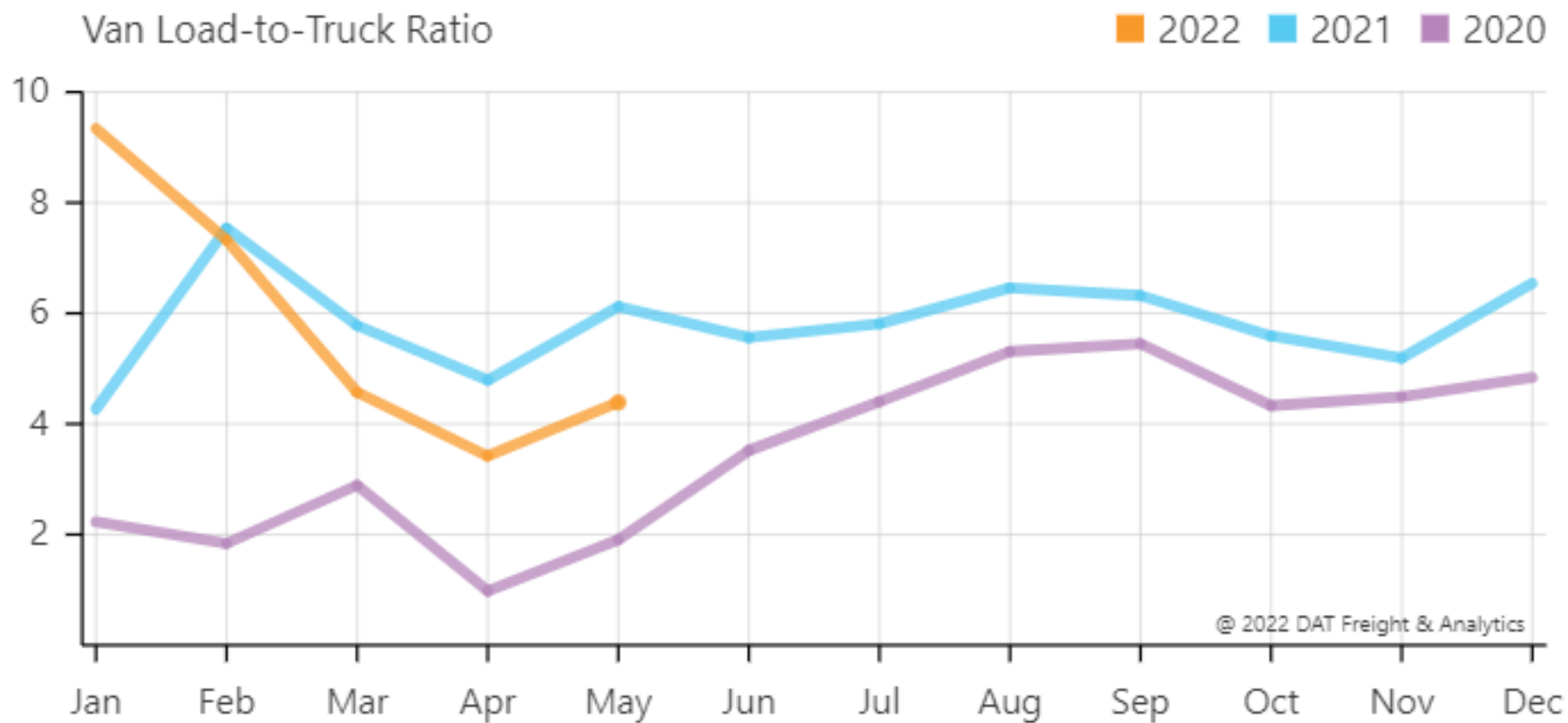
Year-over-year change in Cass Freight Index and Cass Freight Expenditures



Source: Cass Freight Index

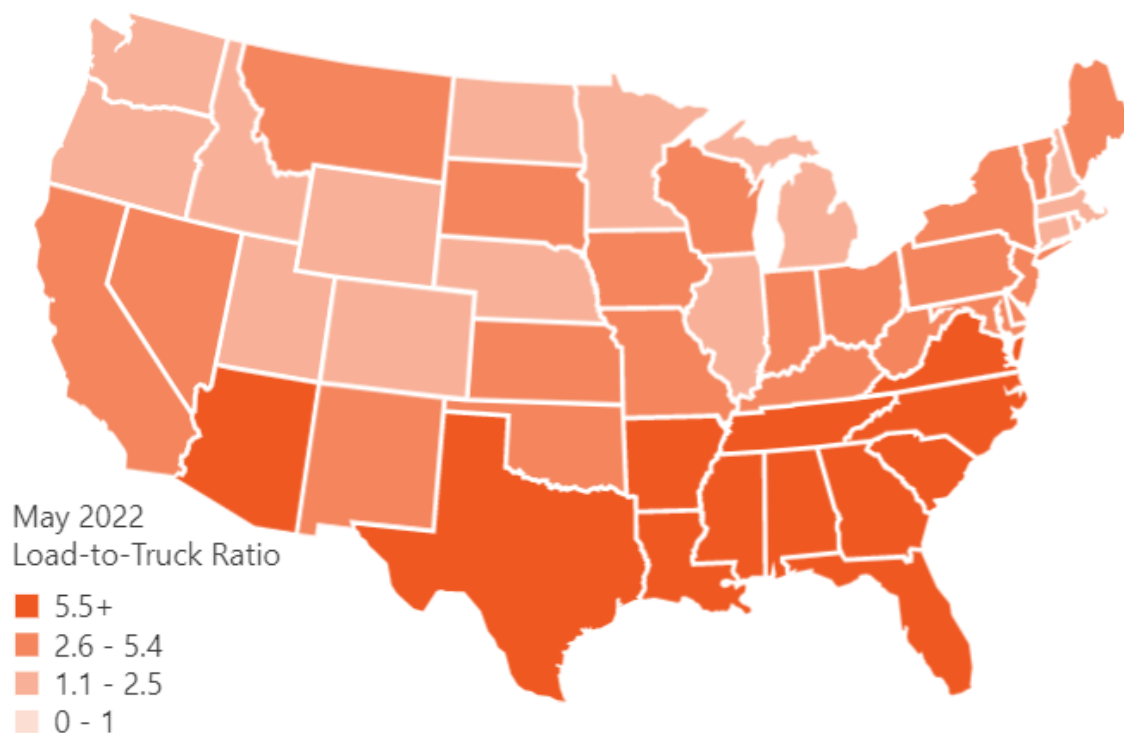
© 2021 IHS Markit

Logistics Update



Logistics Update

National Van Demand and Capacity



Hot Market Maps and Hot State Maps (above) in [DAT RateView](#) depict geographic trends in the load-to-truck ratio.

Logistics Update

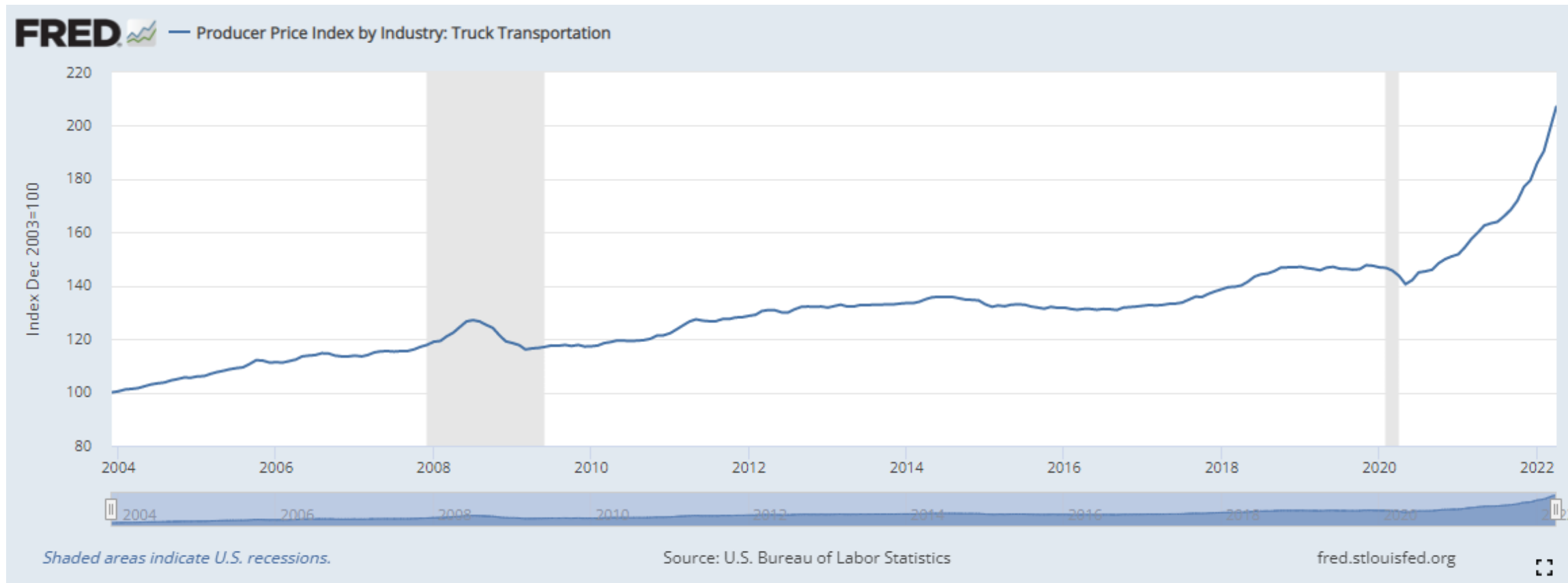
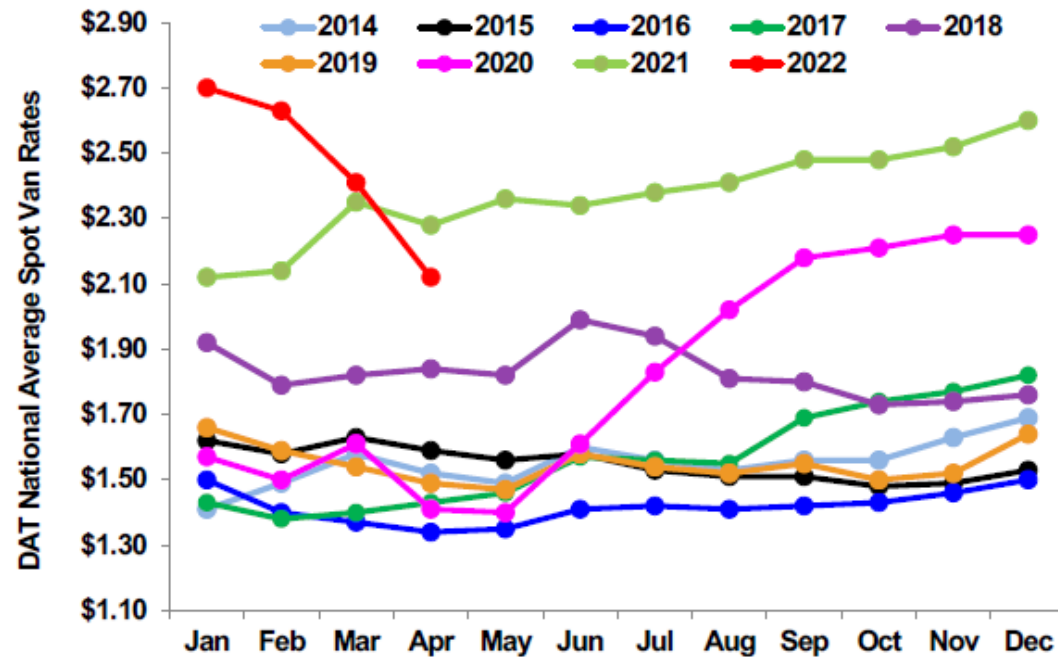
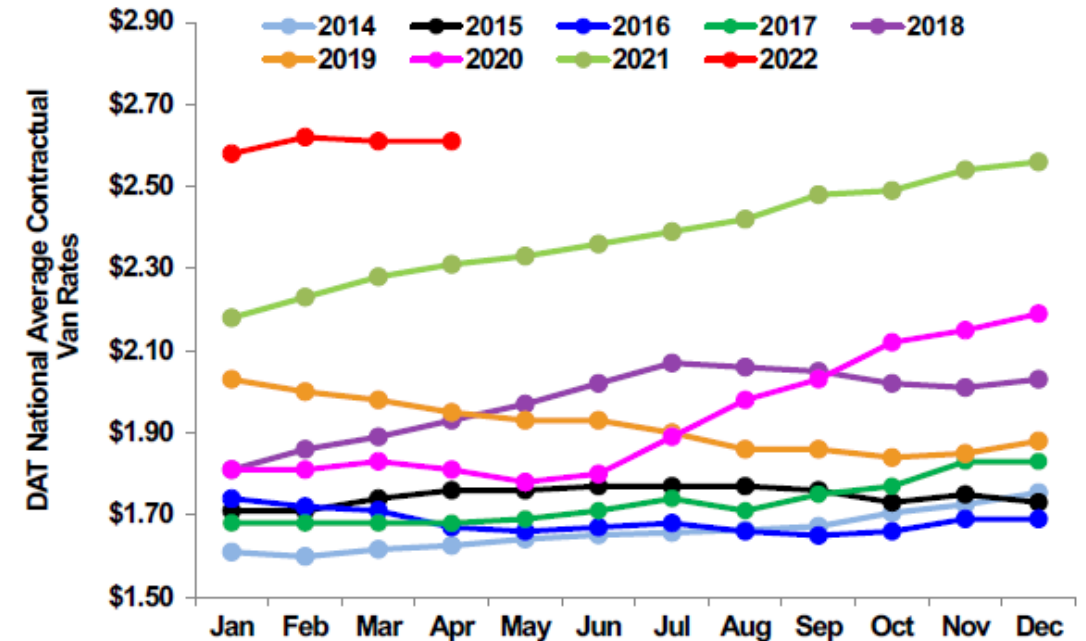


Exhibit 34: National Average Spot Van Rates ex. Fuel Surcharge



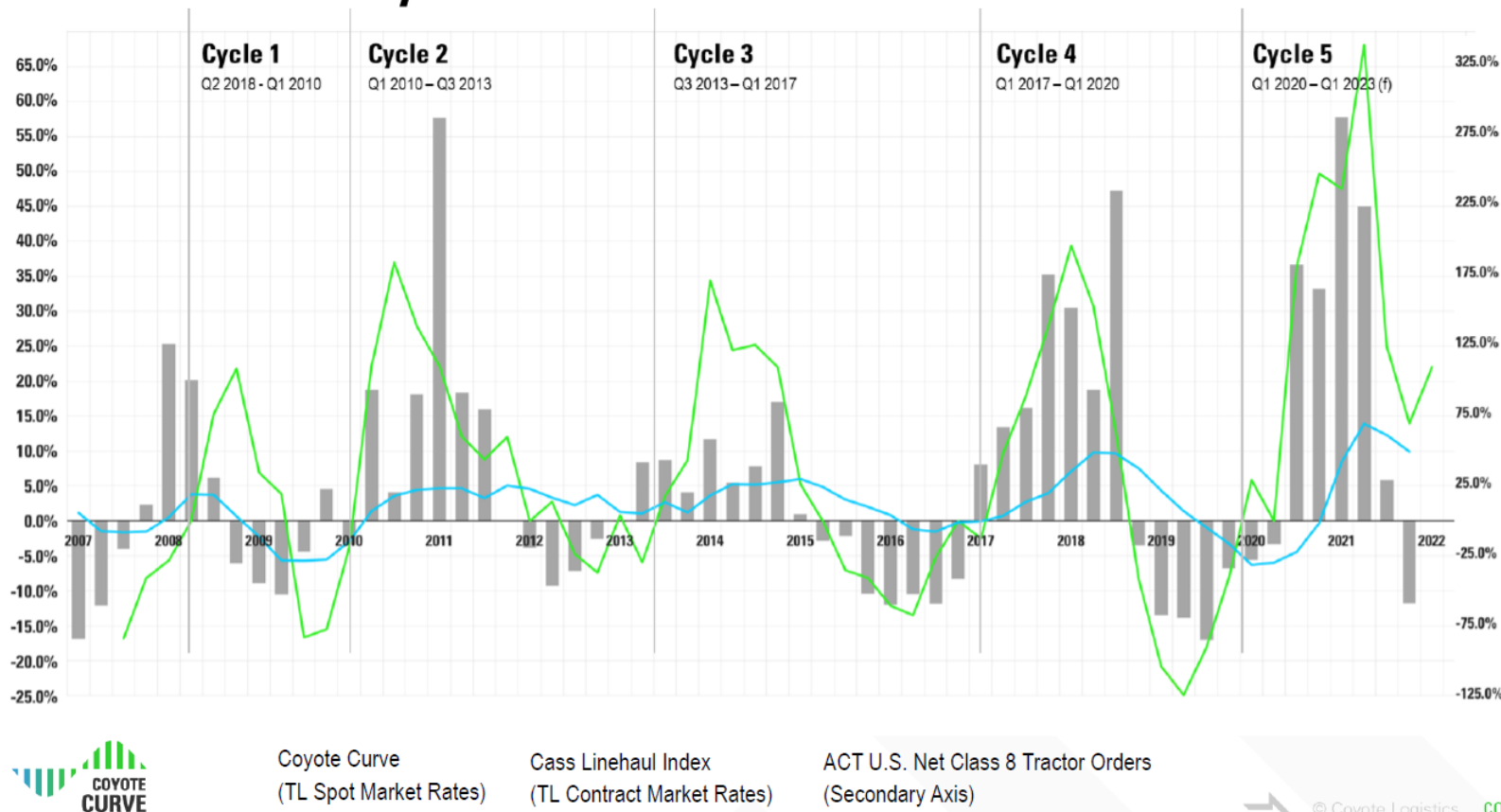
Source: Morgan Stanley Research, DAT Solutions (www.dat.com/resources/trendlines); Note: DAT sources from over \$24 B in transactions and 65k lanes.

Exhibit 35: National Average Contract Van Rates ex. Fuel Surcharge



Source: DAT Solutions, Morgan Stanley Research

Truckload Market Cycles vs. Class 8 Truck Orders



US Retail Diesel Price

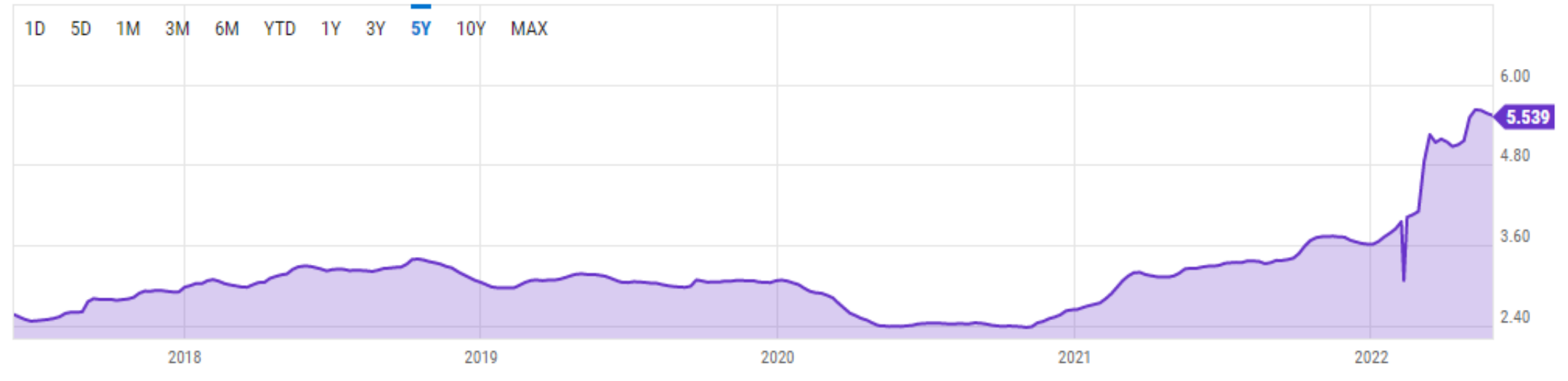
5.539 USD/gal for Wk of May 30 2022

Overview

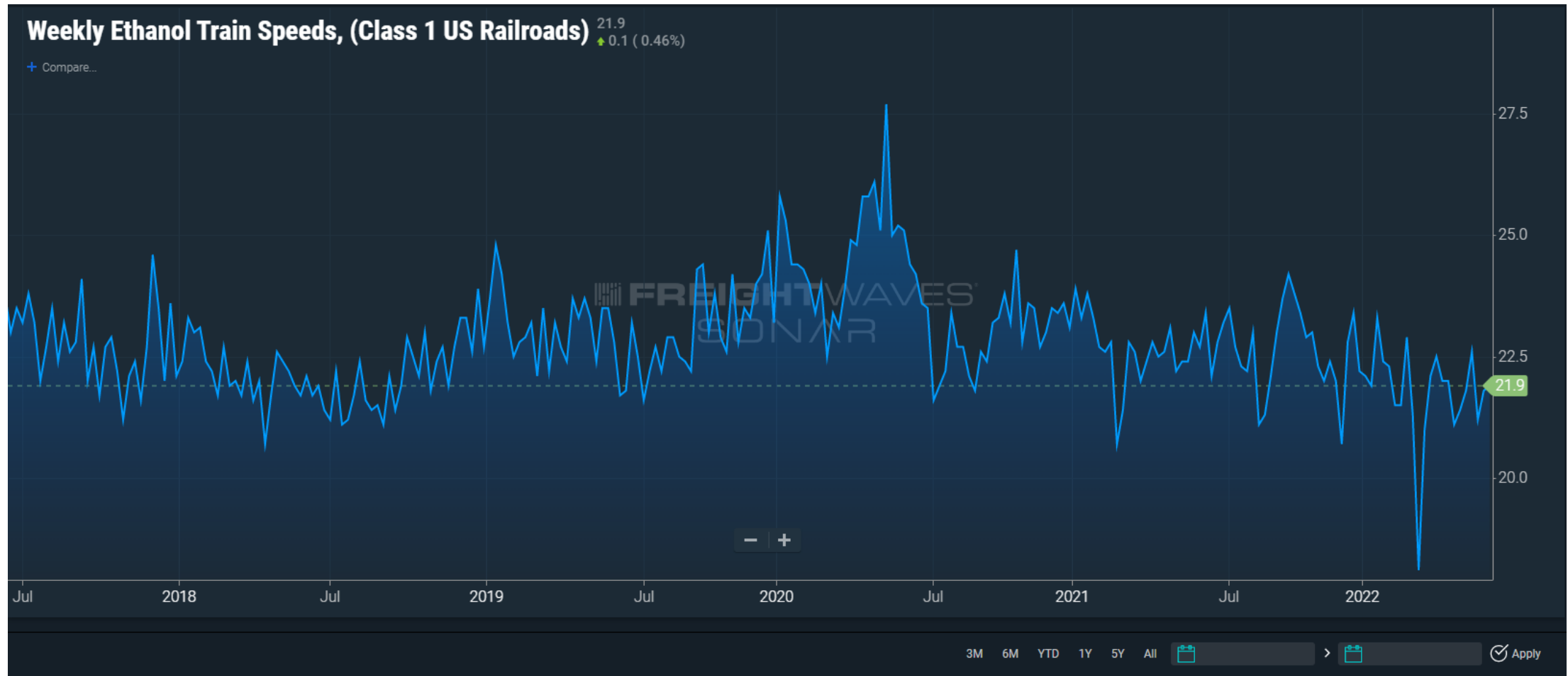
Interactive Chart

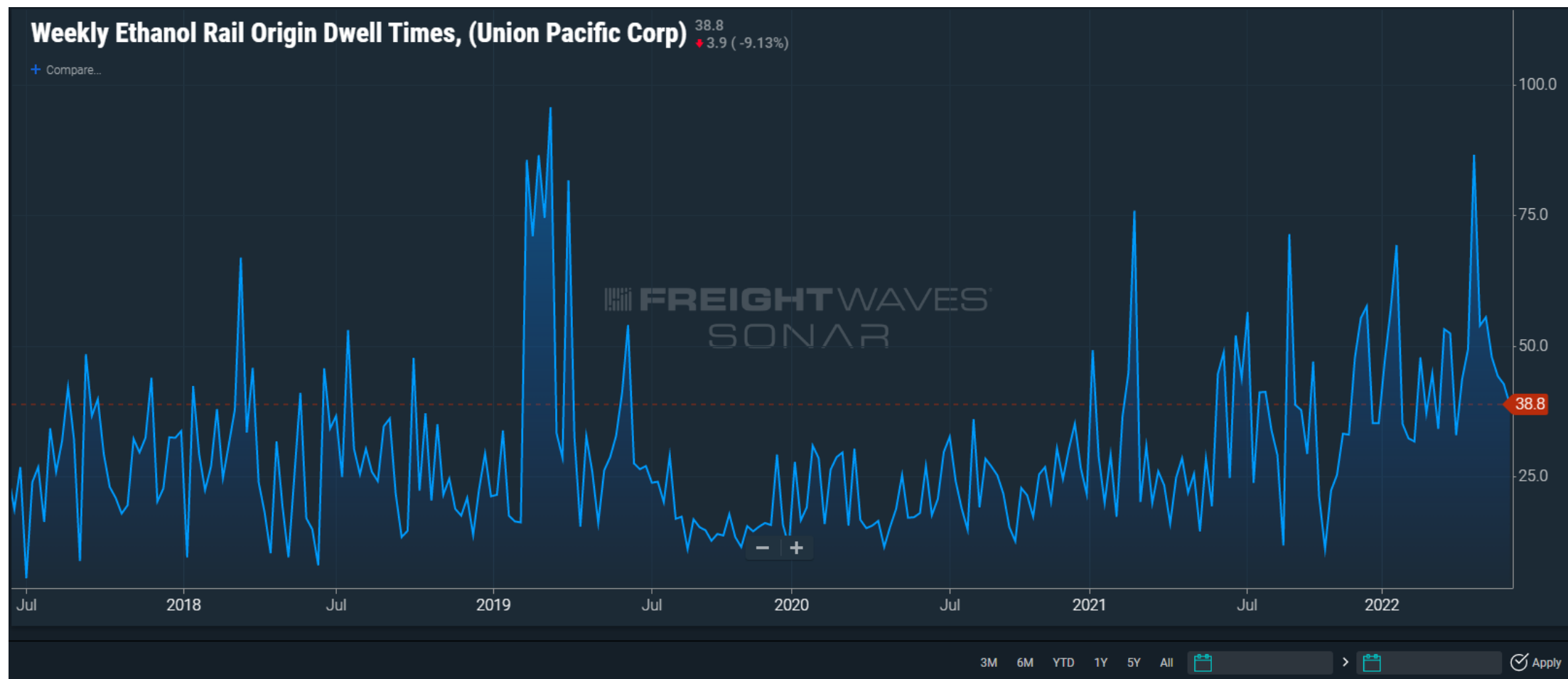
Level Chart

[VIEW FULL CHART](#)



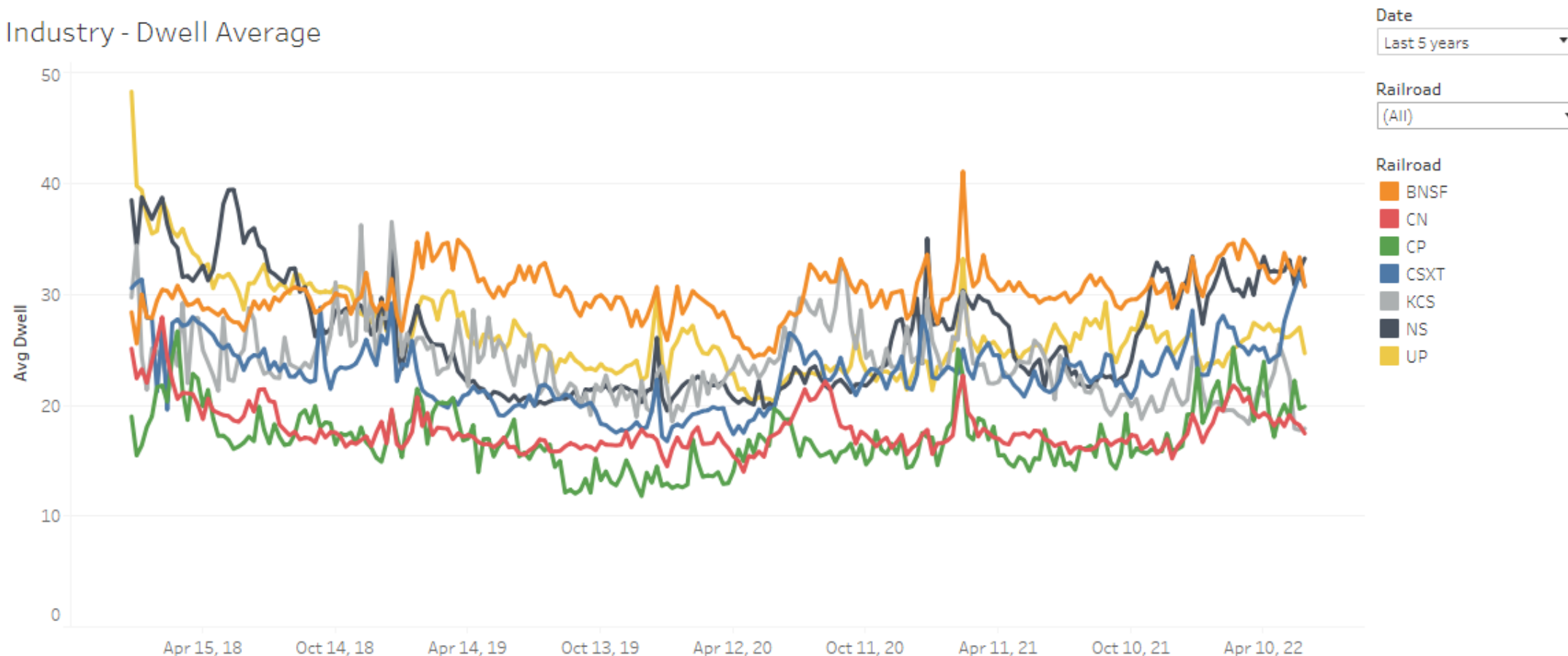
Logistics Update





Logistics Update

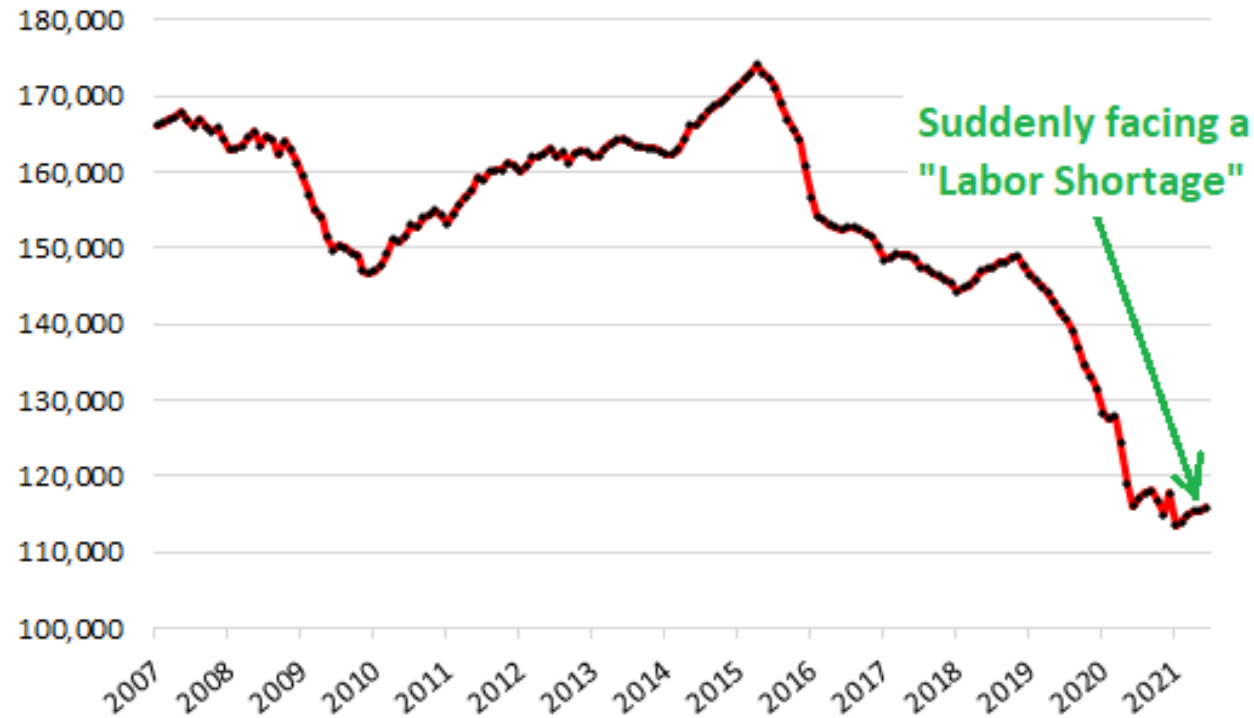
Industry - Dwell Average



Logistics Update

Railroads Slash Jobs:

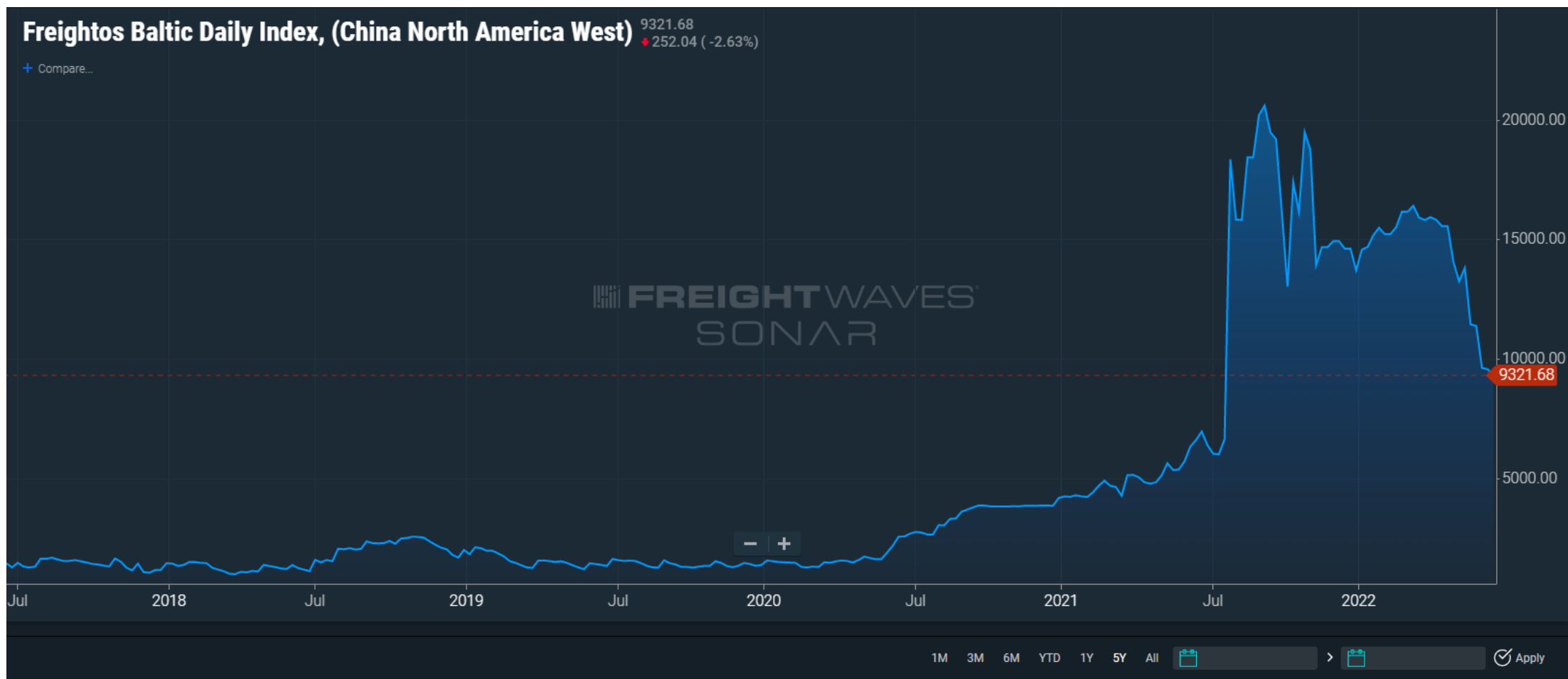
Number of Employees at Class 1 Freight Railroads



Source: US STB

WOLFSTREET.com

Logistics Update



Logistics Update

Obviously, these things are out of our control, but we need to do the things we can control.

1. Communicate and plan – lead times are important!
2. Work with customers buying habits.
3. Consolidation and mode shifting – warehouse utilization.
4. Encourage consignees to unload quickly and not hold up equipment/drivers.
5. Review how you ship orders to maximize cube in trailers.
6. Can consignees do some receiving on the weekends?